

2

Docket No. GJE-6941
Serial No. 10/509,782

In the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

1 (Original). A method for the detection of an analyte in a fluid, which comprises contacting the fluid with a holographic element comprising a medium and a hologram disposed throughout the volume of the medium, wherein an optical characteristic of the element changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the variation arises as a result of interaction between the medium and the analyte, and wherein the reaction and the variation are reversible; and detecting any change of the optical characteristic.

2 (Previously presented). The method according to claim 1, wherein the physical property is the size of the medium.

3 (Previously presented). The method according to claim 1, wherein the optical characteristic is the reflectance, refractance or absorbance of the holographic element.

4 (Previously presented). The method according to claim 1, wherein any change of the optical characteristic is detected as a color change.

5 (Previously presented). The method according to claim 1, wherein any change of the optical characteristic is detected as an intensity change.

6 (Previously presented). The method according to claim 1, wherein the analyte is glucose or lactate.

7 (Previously presented). The method according to claim 1, wherein the analyte is CO₂ or oxygen.

J:\GJE\6941\PTO\prelarend3.doc\la

3

Docket No. GJE-6941
Serial No. 10/509,782

8 (Previously presented). The method according to claim 1, wherein the contacting comprises passing the fluid continuously over the element.

9 (Previously presented). The method according to claim 1, wherein the fluid is an optical fluid.

10 (Currently amended). A device for the detection of an analyte in a fluid, which comprises a fluid conduit having an inlet, an outlet, and a holographic element over which the fluid can flow, wherein the device also includes a window whereby non-ionising radiation can irradiate the holographic element, and wherein the analyte is detected by contacting the fluid with the holographic element, wherein an optical characteristic of the element changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the variation arises as a result of interaction between the medium and the analyte, and wherein the reaction and the variation are reversible.

11 (Previously presented). The device according to claim 10, wherein the holographic element comprises a medium and a hologram disposed throughout the volume of the medium, wherein an optical characteristic of the element changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the variation arises as a result of interaction between the medium and the analyte, and wherein the reaction and the variation are reversible.

12 (Previously presented). The device, according to claim 11, wherein the physical property is the size of the medium.

13 (Previously presented). The device, according to claim 11, wherein the optical characteristic is the reflectance, refractance or absorbance of the holographic element.

J:\GJE\694\PTO\prel amend3.doc\1a

4

Docket No. GJE-6941
Serial No. 10/509,782

14 (Previously presented). The device, according to claim 11, wherein any change of the optical characteristic is detected as an intensity change.

15 (Previously presented). The device, according to claim 11, wherein any change of the optical characteristic is detected as an intensity change.

16 (New). The method, according to claim 6, wherein the fluid is an optical fluid.

J:\GJE\6941\PTO\prel\amend3.doc\la